GAMMASPHERE STUDIES OF ^{252}CF SPONTANEOUS FISSION. M.A. Stoyer, J.A. Becker, L.A. Bernstein, R.W. Lougheed, K.J. Moody, and J.F. Wild, *Lawrence Livermore National Laboratory, Livermore, CA 94550*; J.O. Rasmussen, S.J. Asztalos, S.Y. Chu, R.B. Firestone, K.E. Gregorich, I.Y. Lee, A.O. Macchiavelli, and R.W. MacLeod, *Lawrence Berkeley National Laboratory, Berkeley CA 94720*; Y.X. Dardenne, R. Aryaeinejad, K. Butler-Moore, J.D. Cole, and M.W. Drigert, *Idaho National Engineering Laboratory, Idaho Falls, ID 83415*; R. Donangelo, *Universidade Federal do Rio de Janeiro, 21944 Rio de Janeiro*; J.H. Hamilton, B.R.S Babu, T.N. Ginter, J. Kormicki, and A.V. Ramayya, *Vanderbilt University, Nashville, TN 37235*; Yuri Oganessian, and Gurgen Ter-Akopian, *Joint Institute for Nuclear Studies, Dubna, Russia*; W.C. Ma, and P.G. Varmette, *Mississippi State University, Mississippi State, MS 39762*; and H.C. Griffin, *University of Michigan, Ann Arbor, MI 48109.* For the past 4 years, our group has been studying the spontaneous fission process by detecting gamma-rays emitted from fission fragments in various early implementations of Gammasphere. Both ^{242}Pu and ^{252}Cf have been studied. Some preliminary results will be discussed in this presentation, including for example zero-neutron fission, many-neutron fission and nuclear spectroscopy of neutron-rich nuclei. In the fall of 1996, ^{252}Cf will again be studied using the parallel-plate avalanche counters of the University of Rochester to detect the fission fragments in coincidence with gamma-rays, enabling direct detection of all fission products except for neutrons.

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